CLAIMS

What is claimed is:

1.   A method for routing data packets in a wireless network at a node i,

comprising:

selecting a neighbor p as the next hop in a route from node i to destination j if

(i)   the path from neighbor p to destination j does not include node i and does

not repeat any node, and

(ii) $D^i_{yp} < D^i_{yx}$ for any other neighbor x and for all nodes y that are in the path

from destination j to neighbor p,

where D^i_{yp} is the distance value of the route from node i to node y through

neighbor p and D^i_{yx} is the distance value of the route from node i to node y

through neighbor x.

2.   A method as recited in claim 1,

wherein a first node considers a second as its neighbor if it hears update

messages from said second node; and

wherein said first node no longer considers said second node as its neighbor if

said first node cannot send data packets to said second node.

3.   A method as recited in claim 1, further comprising:

sending updates to a routing table if

> a node discovers a new destination with a finite and valid path to the

> destination, or

5   a node loses the last path to a destination, or

> a node suffers a distance increase to a destination.

4.   A method as recited in claim 1, further comprising:

> sending a unicast routing table update from a node to a neighbor that

10 sends it a data packet, if the neighbor is upstream from it towards the destination;

and

> sending a unicast routing table update from a node to a neighbor that

sends it a data packet when the path implied by the neighbor's distance table

15 entry is different from the path implied by the node's routing table.

5.   A method for routing data packets in a wireless network at a node i,

comprising:

(a)   selecting a neighbor p as the next hop in a route from node i to destination

20 j if

> (i)   the path from neighbor p to destination j does not include node i

> and does not repeat any node, and

(ii) $D^i_{yp} < D^i_{yx}$ for any other neighbor x and for all nodes y that are in the

path from destination j to neighbor p,

where D^i_{yp} is the distance value of the route from node i to node y through

neighbor p *and* D^i_{yx} is the distance value of the route from node i to node y

through neighbor x;

(b)   wherein a first node considers a second as its neighbor if it hears update

messages from said second node; and

(c)   wherein said first node no longer considers said second node as its

neighbor if said first node cannot send data packets to said second node.

6.   A method as recited in claim 5, further comprising

sending updates to a routing table if

a node discovers a new destination with a finite and valid path to the

destination, or

a node loses the last path to a destination, or

a node suffers a distance increase to a destination.

7.   A method as recited in claim 5, further comprising:

sending a unicast routing table update from a node to a neighbor that

sends it a data packet, if the neighbor is upstream from it towards the destination;

and

sending a unicast routing table update from a node to a neighbor that sends it a data packet when the path implied by the neighbor's distance table entry is different from the path implied by the node's routing table.

8. A method for routing data packets in a wireless network at a node i, comprising:

(a) selecting a neighbor p as the next hop in a route from node i to destination j if

    (i) the path from neighbor p to destination j does not include node i and does not repeat any node, and

    (ii) $D_{yp}^i < D_{yx}^i$ for any other neighbor x and for all nodes y that are in the path from destination j to neighbor p,

where D_{yp}^i is the distance value of the route from node i to node y through neighbor p *and* D_{yx}^i is the distance value of the route from node i to node y through neighbor x; and

(b) sending updates to a routing table if

    (i) a node discovers a new destination with a finite and valid path to the destination, or

    (ii) a node loses the last path to a destination, or

    (iii) a node suffers a distance increase to a destination.

9. A method as recited in claim 8,

wherein a first node considers a second as its neighbor if it hears update

messages from said second node; and

wherein said first node no longer considers said second node as its neighbor if

5   said first node cannot send data packets to said second node.

10. A method as recited in claim 8, further comprising:

sending a unicast routing table update from a node to a neighbor that

sends it a data packet, if the neighbor is upstream from it towards the destination;

and

sending a unicast routing table update from a node to a neighbor that

sends it a data packet when the path implied by the neighbor's distance table

entry is different from the path implied by the node's routing table.

11. A method for routing data packets in a wireless network at a node i,

comprising:

(a)   selecting a neighbor p as the next hop in a route from node i to destination

j if

(i)   the path from neighbor p to destination j does not include node i

20   and does not repeat any node, and

(ii) $D_{yp}^{i} < D_{yx}^{i}$ for any other neighbor x and for all nodes y that are in the

path from destination j to neighbor p,

where D_{yp}^i is the distance value of the route from node i to node y through

neighbor p *and* D_{yx}^i is the distance value of the route from node i to node y

through neighbor x;

(b)   sending a unicast routing table update from a node to a neighbor that

5   sends it a data packet, if the neighbor is upstream from it towards the destination; and

(c)   sending a unicast routing table update from a node to a neighbor that

sends it a data packet when the path implied by the neighbor's distance table entry is

different from the path implied by the node's routing table.

10   12.   A method as recited in claim 11,

wherein a first node considers a second as its neighbor if it hears update

messages from said second node; and

wherein said first node no longer considers said second node as its neighbor if

said first node cannot send data packets to said second node.

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13.   A method as recited in claim 11, further comprising

sending updates to a routing table if

a node discovers a new destination with a finite and valid path to the

destination, or

20   a node loses the last path to a destination, or

a node suffers a distance increase to a destination.

14.   A method for routing data packets in a wireless network at a node i, comprising:

(a)   selecting a neighbor p as the next hop in a route from node i to destination

5   j if

(i)   the path from neighbor p to destination j does not include node i and does not repeat any node, and

(ii) $D_{yp}^i < D_{yx}^i$ for any other neighbor x and for all nodes y that are in the path from destination j to neighbor p,

where D_{yp}^i is the distance value of the route from node i to node y through neighbor p and D_{yx}^i is the distance value of the route from node i to node y through neighbor x; and

(b)   sending updates to a routing table if

(i)   a node discovers a new destination with a finite and valid path to the destination, or

(ii)   a node loses the last path to a destination, or

(iii)   a node suffers a distance increase to a destination;

(c)   wherein a first node considers a second as its neighbor if it hears update messages from said second node; and

20   (d)   wherein said first node no longer considers said second node as its neighbor if said first node cannot send data packets to said second node.

15.   A method as recited in claim 14, further comprising:

sending a unicast routing table update from a node to a neighbor that

sends it a data packet, if the neighbor is upstream from it towards the destination;

and

sending a unicast routing table update from a node to a neighbor that

sends it a data packet when the path implied by the neighbor's distance table

entry is different from the path implied by the node's routing table.

16.   A method for routing data packets in a wireless network at a node i,

comprising:

(a)   selecting a neighbor p as the next hop in a route from node i to destination

j if

(i)   the path from neighbor p to destination j does not include node i and does

not repeat any node, and

(ii) $D_{yp}^{i} < D_{yx}^{i}$ for any other neighbor x and for all nodes y that are in the path

from destination j to neighbor p,

where D_{yp}^{i} is the distance value of the route from node i to node y through

neighbor p and D_{yx}^{i} is the distance value of the route from node i to node y

through neighbor x;

(b)   sending a unicast routing table update from a node to a neighbor that

sends it a data packet, if the neighbor is upstream from it towards the destination; and

(c)   sending a unicast routing table update from a node to a neighbor that sends it a data packet when the path implied by the neighbor's distance table entry is different from the path implied by the node's routing table;

5   (d)   wherein a first node considers a second as its neighbor if it hears update messages from said second node; and

(e)   wherein said first node no longer considers said second node as its neighbor if said first node cannot send data packets to said second node.

10   17.   A method as recited in claim 16, further comprising

sending updates to a routing table if

a node discovers a new destination with a finite and valid path to the destination, or

a node loses the last path to a destination, or

15   a node suffers a distance increase to a destination.

18.   A method for routing data packets in a wireless network at a node i,

comprising:

(a)   selecting a neighbor p as the next hop in a route from node i to destination

20   j if

(i)   the path from neighbor p to destination j does not include node i

and does not repeat any node, and

(ii) $D_{yp}^i < D_{yx}^i$ for any other neighbor x and for all nodes y that are in the path from destination j to neighbor p,

where D_{yp}^i is the distance value of the route from node i to node y through neighbor p *and* D_{yx}^i is the distance value of the route from node i to node y through neighbor x;

(b)   sending updates to a routing table if

     (i)   a node discovers a new destination with a finite and valid path to the destination, or

     (ii)   a node loses the last path to a destination, or

     (iii)   a node suffers a distance increase to a destination;

(c)   sending a unicast routing table update from a node to a neighbor that sends it a data packet, if the neighbor is upstream from it towards the destination; and

(d)   sending a unicast routing table update from a node to a neighbor that sends it a data packet when the path implied by the neighbor's distance table entry is different from the path implied by the node's routing table.

19.   A method as recited in claim 18,

wherein a first node considers a second as its neighbor if it hears update messages from said second node; and

wherein said first node no longer considers said second node as its neighbor if said first node cannot send data packets to said second node.

20.   A method for routing data packets in a wireless network at a node i, comprising:

(a)   selecting a neighbor p as the next hop in a route from node i to destination j if

(i)   the path from neighbor p to destination j does not include node i and does not repeat any node, and

(ii) $D_{yp}^i < D_{yx}^i$ for any other neighbor x and for all nodes y that are in the path from destination j to neighbor p,

where D_{yp}^i is the distance value of the route from node i to node y through neighbor p and D_{yx}^i is the distance value of the route from node i to node y through neighbor x;

(b)   sending updates to a routing table if

(i)   a node discovers a new destination with a finite and valid path to the destination, or

(ii)   a node loses the last path to a destination, or

(iii)   a node suffers a distance increase to a destination.

(c)   sending a unicast routing table update from a node to a neighbor that sends it a data packet, if the neighbor is upstream from it towards the destination; and

(d)   sending a unicast routing table update from a node to a neighbor that sends it a data packet when the path implied by the neighbor's distance table entry is

different from the path implied by the node's routing table;

      (e)   wherein a first node considers a second as its neighbor if it hears update messages from said second node; and

      (f)   wherein said first node no longer considers said second node as its

5   neighbor if said first node cannot send data packets to said second node.

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